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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,466	09/30/2003	Christopher W. Bergevin	HSJ9-2003-0113US1	7549

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INTELLECTUAL PROPERTY LAW OFFICE
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EXAMINER

AHMED, SHAMIM

ART UNIT PAPER NUMBER

1765

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/676,466

Applicant(s)

BERGEVIN ET AL.

Examiner

Shamim Ahmed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-3,5-6,8-9,12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terunuma et al (6,329,211).

Terunuma et al disclose a process of manufacturing a magnetic head, wherein the process comprises the steps of:

- Forming a first magnetic film (21), which resembles as the claimed P1 layer in order to form P1 pole; depositing a gap layer on the P1 pole layer and forming a second magnetic material as resembles the claimed P2 pole material (col.5, lines 34-43).

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Terunuma et al also disclose that forming a resist frame (60) by photolithography, wherein the resist frame having an opening (61) (figure 7) with a pattern corresponding to the pattern of the second magnetic pole (P2) to be formed (col.7, liens 48-51).

Terunuma et al further disclose that the second magnetic film (22) is formed in the opening (61) of the resist frame by plating in order to form second pole (P2) (220), which is parallel to the first magnetic material layer (col.7, lines 52-60).

Terunuma et al teach that trimming or dry etching is performed to form the first pole or P1 portion (210) protruding thereon and having track width substantially equal to the track width of the second pole (220) (col.10, lines 3-11 and figure 16).

Terunuma et al fail to teach depositing the gap layer on the P1 protrusion.

However, since the claimed process steps are not in exact sequence, it would have been obvious to form the P1 protrusion after deposition of the gap layer because it has been held that the transposition of process steps, where the processes are substantially identical or equivalent in terms of function, manner and result, was held to be not patentably distinguish the processes. *Ex parte Rubin* 128 USPQ 440 (PTO BdPatApp 1959).

As to claim 2, Terunuma et al teach that after trimming or ion milling the P1/gap/P2 structure, a second filling material of insulating material 27 is deposited and removed to expose the P2 pole (col.10, 57-65, figure 38).

As to claim 3, Terunuma et al do not explicitly teach depositing an N3 layer on the P1 layer.

However, since both the P1 layer and N3 layer are made out of same material, Terunuma et al broadly teach the deposition of N3 layer.

As to claims 5-9, Terunuma et al teach that first and second magnetic material comprises NiFe, CoFe, or CoFeNi (col. 5, lines 48-54) and the gap layer material comprises Al₂O₃, SiO₂ (col.5, lines 64-65).

4. Claims 4,7,10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terunuma et al (6,329,211) as applied to claims 1-3,5-6,8-9,12-19 above, and further in view of Kruger et al (6,859,998).

Terunuma et al discusses in the paragraph 3 above but fail to teach that the P1 protrusion is formed by applying, exposing and developing a photoresist to create a pattern for the P1 protrusion and which pattern is plated with the pole material of CoFe or NiFe.

However, in a method of fabricating a narrow projection such as write pole extending from a substrate, Kruger et al teach that applying, exposing and developing a photoresist to form pattern or cavity, which cavity is filled or plated with projection material of NiFe to form the projection 24 on a substrate (col.3, lines 13-20 and col.4, lines 40-64 and col.6, lines 11-19).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to combine Kruger et al's teaching into Terunuma et al's process for efficiently and advantageously forming a projection in a write pole with precise height and width as taught by Kruger et al.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ju et al (5,843,521) disclose a magnetic head fabrication process including the steps of forming a pattern having opening on the gap layer, which opening is plated with second pole or P2 pole material, wherein the pattern corresponds the first pole or P1 (col.8, lines 15-col.10, line 67).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shamim Ahmed
Primary Examiner
Art Unit 1765

SA
June 9, 2005